

Appl. No. 10/758,656  
Atty. Docket No. 9144  
Amdt. dated 09/01/2005  
Reply to Office Action dated 05/03/2005  
Customer No. 27752

### REMARKS

#### Amendments to the Claims

Claims 1-6, 8-19 and 21-27 are pending in the present application. Claims 7, 20 and 28 have been canceled. No additional claim fee is believed to be due.

Claim 1 has been amended as shown above to recite, "said anionic surfactant system has a ratio of ethoxylated to nonethoxylated surfactant greater than 2:1 and the ethoxylated surfactant contains at least 2 moles of ethoxylation." Support for this amendment can be found in the original claims as well as at page 7, lines 22-25 of the specification.

Claim 10 has been amended to delete "chlorides" from the Markush group. Support for this amendment can be found in the specification at page 13, lines 27-29.

Claim 14 has been amended as shown above to recite, "said anionic surfactant system has a ratio of ethoxylated to nonethoxylated surfactant greater than 2:1 and the ethoxylated surfactant contains at least 2 moles of ethoxylation." Support for this amendment can be found in the original claims as well as at page 7, lines 22-25 of the specification.

Claim 23 has been amended to delete "chlorides" from the Markush group. Support for this amendment can be found in the specification at page 13, lines 27-29.

It is believed these amendments do not involve the introduction of new matter. Consequently, entry of these amendments is believed to be in order and is respectfully requested.

#### Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 10, 23 and 28 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Office Action states that Claims 10 and 23 contain both chlorides and halides in the Markush group. The Office Action also states that Claim 28 is a dependent claim, but does not say which claim it depends from.

Claims 10 and 23 have been amended to delete "chlorides" from the Markush group as described above. Claim 28 has been canceled. Therefore, it is believed that these rejections have been obviated.

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Rejection Under 35 U.S.C. §102(b) Over U.S. Patent No. 5,409,628 to Heinz et al.

Claims 1-11 and 13 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,409,628 to Heinz et al. ("Heinz"). The Examiner asserts that Heinz teaches a hair shampoo comprising 8.25% lauryl ether sulfate, 0.5% polyquaternium-10, 1.5% sodium chloride, 1.5% betaine, and the balance water. Thus, the Examiner concludes that Heinz is anticipatory. Applicants respectfully traverse the present rejection based on the following comments.

As currently amended, Applicants' Claim 1 recites, *inter alia*, a personal care composition comprising a cationic cellulose polymer, having a molecular weight of at least 800,000 and an optimized anionic surfactant system. The relationship between the optimized surfactant system and polymers having certain charge densities and molecular weights are critical to Applicants' invention.

In contrast to Applicants' Claim 1, Heinz generally teaches sodium lauryl ether sulfate, from 2-4 ethoxylate (EO) units, in combination with polyquaternium-10. However, Heinz provides no guidance as to which polyquaternium-10 is used or what the molecular weight or charge density is for the polymer. Therefore Applicants must assume that the example intends to describe a common form of polyquaternium-10. A very common polyquaternium-10 polymer in the "JR polymer" series from Amerchol at the time of the Heinz reference was LR400 which has a molecular weight of about 400,000 and a charge density of 0.7 meq/gm. This polymer would be outside of Applicants' claimed range (at least 800,000) if this is the molecular weight used. Further, Heinz fails to recognize, teach or suggest any benefit associated with the selection of a particular polymer. As discussed above, Applicants teach the criticality of high molecular weight cationic cellulose polymers in an optimized surfactant system. Therefore, upon reading Heinz, one of ordinary skill in the art would not be motivated to achieve the high molecular weight cationic cellulose polymers of Applicants' claimed invention.

Additionally, there is no teaching or motivation that would lead one of ordinary skill in the art to use a specific (EO) level. Instead, Heinz only discloses a broad range without establishing a link established between molecular weight and ethoxylate levels or charge densities and sulfate levels. For a 2EO sulfate at 30% active with a 27.5 wt% in the formula, the ethoxylate level would be 1.839, assuming a commercially available polymer like LR30M at 1.8 MM MW or JR30M at 2.0MM were used. *See Heinz Column*

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5, *Example 4 for ethoxylate level, percent active and percent by weight values.* 1.839 would be well below Applicants' claimed range of ethoxylate level for those polymers. The ideal ethoxylate level for LR30M is 2.62 to 5.62, and for JR30M, the ideal ethoxylate ideal level is 2.83 -5.83 based on a 2MM MW and according to Applicants' Claim 1.

Alternately, if a 3EO sulfate is used at 30% active at 27.5% in the formula, the ethoxylate level would be 2.43 (based on an average typical percent of ethoxylate being 0.27 for 3 molar material), which is also below Applicants' claimed ranges for LR30M & JR30M. *See Heinz Column 5, Example 4 for ethoxylate, percent active and percent by weight values.*

Further still, if a 4EO sulfate is used at 30% active at 27.5% of the formula, the ethoxylate level would be 3.02 (average %EO is 0.366 in 4 molar). *See Heinz Column 5, Example 4 for ethoxylate, percent active and percent by weight values.* While this ethoxylate level is within Applicants' claimed range, the sulfate level for 4EO sulfate is not. The ideal sulfate level for a JR30M polymer would be 1.6 to 4.02 according to Applicants' Claim 1. The sulfate level for 4 molar ethoxylate would be 1.39 (based on an average sulfate in 4 molar EO being 0.169). According to Applicants' Claim 1, *both* the ethoxylate level and sulfate level must fall within the range of Claim 1.

Applicants further submit that to achieve Applicants' Claim 1 would require undue experimentation by one of ordinary skill in the art. An extended period of experimentation may not be undue if the skilled artisan is given sufficient direction or guidance from the cited reference. *See MPEP 2164.06.* Heinz's broad disclosure fails to provide the guidance necessary to motivate one skilled in the art to achieve Applicants' claimed invention because it fails to teach or suggest increased performance of polymer systems by optimizing the surfactant system and its combination with polymers having certain charge densities and high molecular weights.

As discussed above, numerous examples based on the parameters of Heinz's Example 4 demonstrate results falling well outside of Applicants' Claim 1. Heinz does not recognize, teach or suggest any benefit associated with optimizing the surfactant system in relation to molecular weights or charge densities to improve performance of polymers. The criticality of Applicants' surfactant system range and the surprising results associated with combining optimization of ethoxylate and sulfate levels with polymers

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having specific molecular weights and charge densities are not taught or suggested by Heinz.

Heinz fails meet each and every element of Applicants' claimed invention. Therefore, Claims 1-11 and 13 are novel over Heinz.

Rejection Under 35 U.S.C. §102(b) Over U.S. Patent No. 5,726,137 to Patel et al.

Claims 1-6, 8-11, and 13 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,726,137 to Patel et al. ("Patel"). The Examiner asserts that Patel teaches a hair conditioning shampoo comprising 4.5% decyl ether sulfate, 0.6% polyquaternium-10, 0.2% sodium phosphate, 9% betaine, 4% dimethicone/polydimethylsiloxane, and the balance water. Thus, the Examiner concludes that Patel is anticipatory. Applicants respectfully traverse the present rejection based on the following comments.

As currently amended, Applicants' Claim 1 requires an anionic surfactant system having a ratio of ethoxylated to nonethoxylated surfactant greater than 2:1 and an ethoxylated surfactant containing at least 2 moles of ethoxylation.

Patel does not disclose each and every element of Applicants' claimed personal cleansing composition as currently amended. Specifically, Patel does not teach or suggest an anionic surfactant system having a ratio of ethoxylated to nonethoxylated surfactant greater than 2:1 and an ethoxylated surfactant containing at least 2 moles of ethoxylation.

Patel fails to teach each and every element of Applicants' claimed invention. As a result, Claims 1-6, 8-11, and 13 are novel over Patel.

Rejection Under 35 U.S.C. §102(e) Over U.S. Patent No. 6,524,563 to Wire et al.

Claims 1-6, 8-19, and 21-28 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,524,563 to Wire et al. ("Wire"). The Examiner asserts that Wire teaches a hair treatment composition comprising 4% lauryl ether sulfate, 0.3% polyquaternium-10, 2% sodium chloride, 4% bataine, 0.4% polydimethylsiloxane having a particle size of 35 nm, 0.3% silica particles having a particle size of 7 to 40 nm, and the balance water. Thus, the Examiner concludes that Wire is anticipatory. Applicants respectfully traverse the present rejection based on the following comments.

As currently amended, Applicants' Claims 1 and 14 each recite an anionic surfactant system having a ratio of ethoxylated to nonethoxylated surfactant greater than 2:1 and an ethoxylated surfactant containing at least 2 moles of ethoxylation.

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Wire does not disclose each and every element of Applicants' claimed personal cleansing composition as currently amended. The Examiner asserts that Wire teaches an ethoxylate level of about 1 and a sulfate level of about 1. However, Wire does not teach or suggest an anionic surfactant system having a ratio of ethoxylated to nonethoxylated surfactant greater than 2:1 and an ethoxylated surfactant containing at least 2 moles of ethoxylation.

Wire fails to teach each and every element of Applicants' claimed invention. As a result, Claims 1-6, 8-19, and 21-27 are novel over Wire.

Rejection Under 35 U.S.C. §102(b) Over U.S. Patent No. 5,045,307 to Marschner et al.

Claims 1-11 and 13 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,045,307 to Marschner et al. ("Marschner"). The Examiner asserts that Marschner teaches a hair treatment composition comprising 8.88% lauryl ether sulfate, 0.3% polyquaternium-10, 1% sodium chloride, 1.3% betaine, and the balance water. Thus, the Examiner concludes that Marschner is anticipatory. Applicants respectfully traverse the present rejection based on the following comments.

As currently amended, Applicants' Claim 1 requires an ethoxylate level of 1.04 multiplied by the molecular weight of the cationic cellulose polymer divided by 1,000,000 plus from about 0.75 to about 3.25, wherein the sulfate level is 0.42 multiplied by the charge density of the cationic cellulose polymer plus from about 1.1 to about 3.6.

In contrast to Applicants' specified polymers in an optimized surfactant system, Marschner only broadly discloses various hair treatment compositions having surfactant and polymer combinations which fail to meet the requirements of Applicants' Claim 1. The Examiner specifically refers to Table IV in Marschner, asserting that the disclosed ethoxylate and sulfate levels fall well within the range of Applicants' Claim 1.

Applicants respectfully submit that the disclosure of Table IV falls well below the required range of Applicants' Claim 1 with respect to ethoxylate levels. At page 8, lines 21 and 22 of the specification, Applicants state that the level of ethoxylate is calculated based on the following calculation: Level of ethoxylate in a composition = percent ethoxylation multiplied by percent active ethoxylated surfactant. For a 2 molar (2EO) laureth sulfate, the average typical percent ethoxylation is 0.22297, the active level of surfactant in Table IV is  $0.27 \times 32.9 = 8.88\%$  active. Therefore, the ethoxylate level for the example =  $.22297 \times 8.88 = 1.98$ . The polymer used in Table IV is LR30M, a

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polyquaterium-10 cellulose polymer with a molecular weight of 1.8M. *Molecular weight is available from the supplier of polyquaternium-10 (Amerchol).* According to Applicants' Claim 1, the optimum level of ethoxylate for the formula is based on the molecular weight of the polymer. Accordingly,  $\text{ethoxylate level} = 1.04 \times (1.8 \text{ MM}/1\text{MM}) + (0.75 \text{ to } 3.25) = 1.87 + (0.75 \text{ to } 3.75) = 2.62 \text{ to } 5.62$ . Therefore, a 1.98 ethoxylate level does not fall between 2.62 to 5.62 so this example falls well below the required range of Applicants' Claim 1.

Marschner fails to meet each and every element of Applicants' claimed invention. Therefore, Applicants' Claims 1-11 and 13 are novel over Marschner.

Rejection Under 35 U.S.C. §103(a) Over U.S. Patent No. 6,524,563 to Wire et al.

Claims 1-28 are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,524,563 to Wire et al. ("Wire"). The Examiner asserts that Wire teaches preferred amounts of lauryl ether sulfate at 12% and 14%. He further asserts that it would have been obvious to one of ordinary skill in the art to use greater amounts of lauryl ether sulfate and so the limitations of claims 7 and 20 are satisfied, as such amounts are taught as preferred by Wire et al. Thus, the Examiner concludes that Wire renders Applicants' claimed invention obvious. Applicants respectfully traverse the present rejection based on the following comments.

Applicants have discovered an optimization based on a result-effective variable which is unobvious over Wire. *See MPEP 2144.05.* Although Wire generally teaches preferred levels of surfactants from 0.5 to 30% by weight of shampoo compositions, this teaching would not motivate one skilled in the art to practice Applicants' claimed invention. Specifically, Applicants have discovered that systems with ethoxylated and non-ethoxylated surfactants having a ratio of greater than 2:1 ethoxylated:non-ethoxylated surfactants have preferred performance, where the ethoxylated surfactants have greater than 2 moles of ethoxylation. Applicants have discovered that in order to maximize the performance of polymer systems, it is necessary to optimize the levels of ethoxylate and sulfate. Support for this finding is in the specification at page 7, lines 22-27 and page 8, lines 9-11. Achieving the conditions taught by Applicants would require undue experimentation for one skilled in the art based on reading Wire. In determining obviousness, any experimentation likely to lead to Applicants' claimed invention must be taught by the cited reference. *In re Wymouth*, 499 F.2d 1273, 1276 (Fed. Cir.1974). Wire

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does not recognize any correlation between increased polymer performance associated with optimized ratios of ethoxylated and non-ethoxylated surfactants, and polymers having specific molecular weights and charge densities. Further support for unobviousness can be found through unexpected results. In order to prove unexpected results, Applicants must show that the results were greater than those which would have been expected from the cited reference to an unobvious extent, and that the results are of a significant, practical advantage. *See MPEP 716.02(a)*. As discussed above, Wire does not teach or suggest that modification of ethoxylate and sulfate levels, combined with polymers of specific molecular weights and charge densities would have any beneficial effect. Also discussed above, Applicants have shown that this optimization provides the significant and practical advantage of maximizing the performance of polymer systems. Support for this finding is in the specification at page 7, lines 19-35 and page 8, lines 1-11. Therefore, upon reading Wire, one of ordinary skill in the art would not be motivated to optimize ratios of ethoxylated and non-ethoxylated surfactants, and polymers having specific molecular weights and charge densities.

Wire fails to establish a *prima facie* case of obviousness. Therefore, Claims 1-6, 8-19 and 21-27 are unobvious over Wire.

#### CONCLUSION

In light of the amendments and remarks presented herein, it is requested that the Examiner reconsider and withdraw the present rejections. Early and favorable action in the case is respectfully requested.

Applicant has made an earnest effort to place their application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, Applicant respectfully requests reconsideration of this application and allowance of Claims 1-6, 8-19 and 21-27.

Respectfully submitted,

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